tomical relations, that these nerves of the aponeuroses ought to be considered as centripetal nerves from the muscle. The need of admitting the existence of these nerves has been demonstrated in a physiological memoir I recently published *on the origin and signification of the knee phenomenon and other analogous phenomena.*

"Nerve fibres similar to those, the existence of which in the frog I have noticed, have been detected also in the aponeuroses of other animals.

2. "I have found it quite impossible to determine in the dissociated muscles of the frog, and of some other species of animal (tortoise, frog, lizard, snake, and rabbit), the presence of non-medullated fibres, other than those that appertain to the vascular or aponeurotic nerves, and the presence of terminations other than motor terminations.

3. "I have, on the other hand, been able to find in many species of animals new forms of nerve terminations which constitute the intermediate forms between the motor terminations, such as we see in the frog, and the end plates. I have found these in the tortoise, the triton, the salamander, the lizard, and the serpent. In the three first named these are the only terminations I could find, while in the lizard and the serpent I met with them together with the end plates, especially in young muscular fibres.

"The simplest form of these terminations is seen in the tortoise; non-medullated nerve fibres ramify without anastomosing and terminate in the muscular bundles by stems that are sometimes smooth, but which are more frequently moniliform or surrounded by granulations strongly tinged by the gold. These granulations, which are disposed around the terminal stems, are sometimes so numerous that they form, as a whole, a resemblance to the terminal arborization of a little motor end plate.

"These new forms of nerve terminations all present this peculiarity, that they are only found in non-medullated nerves, although the latter always come from medullated nerves. In the snake the non-medullated fibres may run a long distance.

"In cases where the nerve ends in the muscle by a well developed plate, we never observe more than one such for each muscular fibre; when, on the other hand, we meet with the terminations I have described, we generally find many nerves ending on the same muscular fibre, and in the snake there may be as many as six or seven."

A more detailed memoir with illustrations will shortly be published.

INFLUENCE OF PHYSICAL AGENTS ON THE PERIPHERAL NERVES.—At the session of the Soc. de Biologie, Oct. 19 (rep. in *Gaz. des Hopitaux*), M. Onimus offered the following communication:

Mechanical excitations and thermic agents often give the same results as metallic applications in hysterical cases, that is to light currents of electricity. This shows very clearly that in all the modifications of hemianæsthesia in achromatopsy and contracture, we have principally to do with molecular changes in the peripheral nerves.

A simple shock, or more exactly, very frequently repeated and short vibrations may also cause the same modifications of the peripheral nerves in cases of hysteria. The lesion appears, therefore, to be solely a sort of benumb-

ing of the conductibility of the peripheral nerves. These different agents come, so to speak, to the assistance of the nerve to force it to vibrate. As we have said in our article on *contracture*, there is for the nerves as for the muscles, an intermediate state between health and genuine disease, the sole lesion of which is slowness and defect of vibratory motility.

In the sensory nerves we have even more characteristic examples of these various impressions of the peripheral nerves, for thus a shock or blow struck on the forehead causes the impression of phosphorus, the same as a current of electricity. It is the same with the auditory sense in which electric currents produce particular noises, differing a little according to the nature of the current, but which resemble those due to other causes.

It is also very useful to compare these phenomena to those recently brought by M. Hirn to the attention of the Academie des Sciences. A bar of iron may be heated instantaneously more than 30° by the stroke of a hammer, and, at the expiration of a second, the former temperature reappears. It is not, it is true, a real increase of temperature, but an absolutely subjective phenomenon. The sonorous vibrations have, by their rapidity, shocked the cutaneous nerves so as to create an impression of heat.

These facts demonstrate that in all cases vibrations arising from different sources of motion, applied to the peripheral nerves, give rise to the same sensations; and in a subjective way all the excitants, electric currents, and especially those of tension, the vibrations of a musical instrument, of thermic agents may, when the nervous system is in a normal condition, produce analogous phenomena.

THE following are the titles of a few of the recent papers on the Anatomy and Physiology of the Nervous System, of which we have not yet given abstracts in the JOURNAL:

CARPENTER, The Effects of Attention on the Bodily Organs, *Brit. Med. Jour.*, Dec. 14, 1878.—HURD, The Physiology of Sleep, *Boston Med. and Surg. Journal*, Dec. 26.—CHARCOT and PITRES, New Contribution to the Study of Motor Localizations in the Cortex of the Cerebral Hemispheres, *Revue Mensuelle*, Nov.—TARCHANOFF, On the Psychomotor Centres in New-born Animals and their Development under Different Conditions, *Ibid.* —EULENBURG & GUTTMAN, Physiology and Pathology of the Sympathetic System of Nerves. Transl. by A. Napier, M. D., Part II., *Jour. of Mental Sci.*, Oct.—BUCKE, The Moral Nature and the Great Sympathetic, *Am. Jour. of Insanity*, Oct.